INFORMATION REPORT

CD NO [redacted]

COUNTRY East Germany

SUBJECT Werk fuer Fernmeldewesen HF (OSW) Production in 1952

DATE DISTR

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1. [redacted] 25X1

2. In early April 1952, a new investment plan for the tube production plant was prepared by the Central Office of the Chief Mechanic. In early July 1952, the Ministry for Post and Telecommunications appropriated 100,000 eastmarks for investments on the production of RS-558 and RS-556-type water-cooled transmitting tubes. Investments totalling 10,000,000 eastmarks were planned for 1953. On 13 September 1952, it was announced that investments amounting to 6,800,000 eastmarks had been appropriated. In late September, a ministerial order imposing economies directed all managers to plan investments only if machinery of the plants was exploited to capacity for three shifts; no other possibility of increasing the output was given. The investment sum for Werk HF was again reduced to 5,800,000 eastmarks, which included 500,000 eastmarks for research work, 180,000 eastmarks, for office and similar equipment, about 4,500,000 eastmarks for the tube manufacturing plant, and 620,000 eastmarks for the set manufacturing plant. In September 1952, it was announced that, until late 1952, the discharge tube-producing department, Kostenstelle No 418, and the wire-production plant, unremunerative because of a lack of orders, would be assigned to the Berliner Gluehlampenwerk (BGW). 25X1 [redacted] the PRK-2-type, too, was no longer of interest to the Soviets. Ing. Paul Rothenburg stated that 70 to 80 percent of the wire produced by the wire plant was unsatisfactory 25X1 because of a lack of specialists experienced in the sintering technique as well as of suitable semifinished materials.

3. In early May, orders placed for tubes included:

a. An order for 1,600,000 radio tubes including 500,000 for sale in East Germany;

25X1 b. An order for 120,000 LK-23-type television receiving tubes;

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c. An order for 20,000 x 7" oscillograph tubes; no producing capacity was available for this order, however;

d. An order for 2,000 oscillograph tubes of various types;

e. An order for 55,000 metal-ceramic tubes including 50,000 pieces for the USSR and 5,000 tubes for Radeberg to be used in decimeter sets and radio telemeters, especially the IMS 531 type which operate at waves up to 8.5 cm and contain three tubes each, including two spare tubes. These radio telemeters are standard transmitters with net set, detector-indicator for high-frequency output and seperate modulation;

f. The quota of the special tube program;

g. An order for the production of 800 tubes of TS-41 type per month. The production of these tubes was stressed. Most of them were delivered to the Elmeg Firm in Hohenneuendorf[3] to be installed in therapeutic transmitters. Since value as to capacity and grid current was only roughly estimated as the tubes were accepted, they could not be used for radio transmitters. The Elmeg Firm was continuously supplied with various types of
25X1 irradiation tubes. [redacted] the therapeutic sets would be delivered to China. The production of 9H9M-type wideband pentodes started in June 1952; 2,000 tubes of this type
25X1 and 2,000 tubes of another miniature type were delivered monthly to the Schaeffer & Budenberg Firm in Magdeburg.[4]

[redacted] 4. In early 1952, the Technical Planning Department had prepared a production plan which included the production of miniature tubes on Soviet request.[5] RCA and Philips-type tubes produced in October included 6 A G 5, 6 A L 5, 6 X 4, 6 J 6, 6 A K 5, E Y 51. Types P C L 81, P L 83 (15 A 6), P L 81 (21 A 6), E C C 81 (12 A T 7), E C 80, E C H 81 were scheduled to be redeveloped during the last three months of 1952 and types E A B C 80, E F 85, E C 92 (6 A B 4), E F 80, E B F 80 in the first three months of 1953. The parenthesized designation is the American type designation. Part of this program had already been sanctioned by the Planning Ministry. However, since the works protested against this plan in early August 1952 stating that it could be realized only if 3,000 square meters of factory space were made available and that on the basis of current limited space only an output of 2,000,000 radio tubes, 150,000 television receiver tubes, 50,000 MK-type tubes and the previous number of special tubes was possible, the Ministry for
25X1 Post and Telecommunications gave in and ordered that 1953 investments be keyed to these figures.

[redacted] 5. In late June 1952, the production of metal-ceramic tubes had to be discontinued for several weeks because of an excessive rate of unsatisfactory tubes.[6] The department removed all employees living in West Berlin and was placed off limits except for holders of special permits. Investigations showed that difficulties in production resulted from ceramic material supplied by the Hescho Plant which compared unfavorably with ceramics produced by the HF works. The principal difference resulted from the use of synthetic steatite instead of natural steatite and zirconium silicate instead of zirconium oxyde. Also, the correct burning-in temperatures had been disregarded in the sintering process of the molybdenum.

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6. In April, May and June 1952, various devices including germanium triodes were manufactured for development purposes.

7. In July, Kostenstelle No 141, which was headed by one Kleinschmitz (fnu), prepared an offer for the Polish State Railways. This 10,000,000 project planned the delivery of carrier frequency installations.

8. In July, 575 STV-150/20-type stabilizers without trade-name were to be delivered to the HV RFT. Only after the HV RFT had declared that no other than components and tubes without trade-name would be used for these devices, did the manufacturing plant agree to make the delivery.

9. In late May 1952, the Sachsenwerk Radeberg required 540 LD-11-type metal-ceramic tubes for measurements at a wave length of 8.75 cm and 0.5 watt, stating that they were needed for signal generators which had to be delivered as reparations goods. The deliveries of 150 tubes in June, 190 tubes in July or August, and 200 tubes in September were said to have been agreed to by Director Mueller who contacted one Machenko (fnu) in Radeberg. On 3 June 1952, a telegram sent by the Tekhnopromimport in Baukova which was signed by one Smirnov (fnu) requested that the completed LD-6, LD-7, LD-9, LD-11, and LD-12-type tubes be shipped immediately, if possible by air. In June 1952, an electron microscope was delivered to Leipzig University at a price of 80,000 eastmarks. Another one was scheduled to be delivered to Hescho in July. An X-ray device with revolving anode and impulse control developed by Jung (fnu) was delivered to the solids research institute in Buch in June 1952.

Development Work.

10. In early July 1952, a report making provisional proposals for the extension of existing laboratories in the producing works and the establishing of new laboratories was submitted to Director Mueller. The report stated that a final decision could be made only after it was known how many of the experts, especially the leading personnel of the former Oberspreewerk, who had returned from the USSR would work for the plant. The report emphasized the necessity to free production from all tasks beyond its proper sphere, requested that production not be employed for basic work and procurement of materials and machinery, and stated that department laboratories were imperative since they could help overcome difficulties, improve production and ascertain new manufacturing processes. The laboratories should be independent of production as to staff and equipment and should be responsible to the manager of the tube plant. The following temporary organization was proposed: General management: Dr Richter (fnu), a returnee from the U.S.S.R.

A. Tube Laboratory (Hauke (fnu)):

a. Test station for radio tubes and special tubes (Ing. Heinrich Krueger).

b. Test station for electron beam tubes (replacement for Muckenhaupt (fnu)).

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B. Chemical and chemicophysical laboratories (Dr Schwechten (fnu)):

a. Laboratory for luminous materials and screens (Mrs. Thurley (fnu)).
b. Laboratory for pastes (Dr. Schwechten and Dr. Scharf (fnu)).
c. Metallurgical laboratory (Lesinski (fnu) or Dr. Moll (fnu)).
d. Laboratory for chemical agent needed for production and for analyses (Grove (fnu)).
e. Laboratory for ceramics and glass technique (Vasel (fnu) and Kensche (fnu) or Pouet (fnu).

C. Technical production control (Stoehr (fnu)):

a. Technical office (Gittner (fnu)).
b. Testing (Koronseck (fnu).).
c. Statistics and rejections.

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D. Material testing (Grove (fnu) and Meissner (fnu)).

11. The first experimental sample of a travelling wave tube, developed as result of a research order of the Ministry for Machine Construction, was ready in June. It was a glass structure with a molybdenum frequency modulation spiral, about 250 mm long, and a magnetic field of about 400 gauss which was generated by air core coils. It had an output of 1.5 watt at a wave length of 8 cm. Development of a ceramic structure type was also started. The redevelopment of the 730-type magnetron tube and the LG-80-type blocking tube started in August. Five samples of the two tubes were still to be delivered in 1952. The production was to start in early 1953. One Bleik (fnu) was responsible for this development work. The tubes were for, and were developed in co-operation with, the Koepenick Funkwerk (Radio Works). They were to be used for ship radar sets. The 730-type magnetron was a multiple slot anode magnetron with an impulse output of allegedly 10 kw and a wave length of 3 cm. The LG-80 type blocking tube was a nullode. The type designation dated back to before 1945. The LG-76 and LG-79-type blocking tubes were scheduled for redevelopment in 1953.

12. In August 1952, distribution of the various tasks in Department No 111 for tube development was as follows:
Fischer (fnu) was in charge of water-cooled transmitting tubes; Hadraht (fnu) was in charge of miniature tubes and SA-101 and Sa-102-type receiving diodes; Schoenherr (fnu) was in charge of ultra-short wave transmitting tubes up to 1 kw; Reck (fnu) was in charge of ultra-short wave transmitting tubes of more than 10 kw; Bleik (fnu) was in charge of magnetron tubes, noise diodes, as e.g. LG--16-type tubes, and LG-80-type nullodes; Heidborn (fnu) was in charge of travelling field tubes and power klystrons; Dr. Kromberg (fnu) was in charge of the pressure glass technique; and Brinkmann (fnu) was in charge of metal-ceramic tubes and L-cathodes.
In September, items under development included:
An ultra-short wave tetrode of 250 w, which had for second grid a disk, with thoriated filament containing 1.8 percent of thorium, and which was 60 percent developed; an ultra-short wave triode of 1 kw, with thoriated filament containing 1.8 percent of thorium, which was 95 percent completed; an ultra-short wave tetrode of 3 kw, which was 30 percent completed; an ultra-short wave triode of 10 kw, air cooled, which was 70 percent completed; an ultra-short wave triode 20 kw, air cooled, which was 20 percent completed; an ultra-short

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wave transmitting tube of 50 kw, which was in the preliminary stage of development and was to be completed in 1953; a travelling wave tube for a wave length of 10 cm, 1 w in case of hundredfold amplification, which was 90 percent completed; a power klystron for a wave length of 3 cm, which was 20 percent completed; a 730-type magnetron for impulse operation, which was 10 percent completed; an LG-80-type blocking tube, nullode, which was 70 percent completed; an ECH-81-type converter tube the production of which was to start in December 1952 to replace the 6SA7-type converter tube which had been manufactured on Soviet orders and was rejected by the radio industry as obsolete.
Sets under preparation included: television transmitters for 1 kw, 3 kw and 10 kw; ultra-short wave transmitters for 200 w, 1 kw, 3 kw, 20 kw and all pertinent antennas; home television receivers; club television receivers; film scanners with Nipkow (sic) disk: two-beam oscillographs with a writing velocity of 50 km per second; germanium detectors and transistors.

13. The L-cathode (power cathode) had been developed by the Philips Firm to prolong the service life and improve the emission stability of high-duty service tubes. The L-cathode consisted of a pot filled with an emission carbonate mixture and covered by a porous cover of sinter metal, generally tungsten. An emitting film of tungsten crystals and the penetrating emission carbonate formed on the surface of this pot. The LD-12-type was the first in the HF Plant to be equipped with an L-cathode and achieved a service life of 1,000 hours, i.e. the output decreased less than 25 percent during that time at a wave length of 9 cm. The L-cathode required a filament input which was about 100 percent higher than that of normal cathodes, but was accepted in view of the essentially longer service life and better output. The increased filament input was necessary because of the larger surface and cooling. During the development, it was observed that the emission carbonates intensively vaporized and condensed on the ceramic thus possibly causing bad insulation. The types permanently, or for test purposes, equipped with L-cathodes showed no oscillation failures because Q was very small (about 100) during the operation. The permeability of the tungsten cover was obviously too high. The cover should consequently be more sintered. This would require higher pressures and higher temperatures. The L-cathodes were heated by coiled filaments. The L-cathode was also planned for use in big rectifiers but no large-style tests had been made. Experiments in which rhenium was used instead of tungsten showed improved technological and emission results.

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14. In early 1952, samples of the 10 w, 50 w and 100 w zirconium lamps and the xenon impulse lamp were manufactured for the USSR. When the production of the XBO-3000-type lamp started in June 1952, production of the technically surpassed HBO-1000-type high pressure lamp decreased. The XBO-3000 was a water cooled quartz lamp filled with xenon; the quartz cap was covered by a hard glass cap and cooling water ran through the space between these two caps. The output was 3,000 w, candle power was 90,000 lumina, voltage at the lamp was 80, ignition voltage was 5,000, service life was limited to 200 hours because of blacking the bulb. The development of the XPO-7000-type high pressure xenon lamp for an output of 7,000 w started in July 1952. No technical data were available.

[redacted] 15. A high-duty sintering oven for temperatures up to 2,000 degrees centigrade and vacuum annealing or annealing in H_2-atmosphere, with a filling space of 50 x 100 mm equipped with vacuum tight locks for vertical charging, was completed in June 1952. Ready for operation with 50 smelting-pots of graphit, alumina and magnesium oxide, the oven was valued at 150,000 eastmarks. It had been constructed by Ihlnbarth (fnu) on Soviet order. A second oven had also been ordered by the Soviets.

25X1 16. [redacted] the newly developed glass technique would be used in production in 1953 principally for the manufacture of high-performance ignitrons for high and low tension and for rectifying tubes. The necessary ignition pin technique using boron carbide pins was also being developed successfully. 25X1

[redacted] 17. In May 1952, an instrument for measuring the persistence of television receiving tubes was developed as a Soviet plan task. A high tension rectifier for the current supply of electrostatic electron lenses and an admittance measuring bridge for 0.1 to 300 kilocycles with a measuring allowance of ± 2 per mill were being developed under plan task Nos 52-12 and 09711/195 as work number 140030. 25X1

[redacted] 18. In early 1952, ten Lorenz-type page printers, redeveloped by Wilhelm Rieger of the developing test station, had been completed. Since the order for the construction of 2,000 page printers of this type had been placed with the RFT-Geraetewerk Chemnitz, tools and semi-finished products were delivered to this factory. In June 1952, a conference at the Ministry for Machine Construction decided to discontinue the redevelopment of tyril (sic) - and roller-bearings because an electronic control developed by RFT-Koepenick would be adopted for the voltage regulation of generators. This type of control had already been in use in the Oranienburg and Potsdam power stations.

19. In 1952, the Hf Werk fuer Fernmeldewesen, Berlin-Oberschoeneweide, and the Sachsenwerk Radeberg developed a new television receiver with 18 and 22 miniature tubes respectively. [redacted] 25X1 Moscow offices would decide which of the two sets would be manufactured. The delivery was scheduled to begin in October 1953. 25X1

Raw Materials.

[redacted] 20. In early 1952, the supply of molybdenum sheets of 0.2 to 0.3 mm was the greatest bottleneck in producing television receiving tubes and metal-ceramic tubes. Part of these sheets was expected to come from Switzerland. In late April, a carload of 10 tons of molybdenite arrived from China. It was to be processed to molybdic acid in the HF works. In April, the Bitterfeld works received 400 tons of scheelite from China.

21. Since mid-1952, no deliveries of P 2 iron had been received from Wickede on the Ruhr River. All supply channels from the West were blocked for several weeks. Prior to September 1952, it was also impossible to procure from the West covar (sic) sheets which were urgently needed for special tubes. Experiments to produce covar,

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made by Bock (fnu) of Awtowelo at Haus der Knorrbremse on Neue Bahnhof Strasse, Berlin-Lichtenberg, proved unsuccessful until late September 1952. The Institute for Special Materials in Dresden under the direction of Professor Eisenkolb (fnu) was ordered to develop covar.

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22. In August 1952, a delivery of cathode nickel arrived from the USSR. The material was definitely inferior to that of Germany, especially West Germany. The degree of purity varied greatly.

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23. In September 1952, [redacted] the existing stocks of thorium and zirconium would last only until the end of the year. Nor had a place to order thorium been found. In 1953, zirconium oxide was to be delivered from the Bitterfeld Electric Chemical Combine where it was extracted from monazite sand found near Zingst. Magnesium was urgently needed for the processing of zirconium oxide to metallic zirconium.

24. In July 1952, the USSR ceased to deliver mica in punched rounds of a diameter of 18, 20, 22, and 24 mm and instead delivered 1 ton of block mica which was split and punched in a plant in Zehdenick, Mark.

25. In July 1952, the inert gas stocks delivered from West Germany ran short. The Oxyka firm in Berlin-Schoeneweide was still unable to deliver from its production. Dr Ritthagen (fnu) of the State Secretariat for Chemistry, Stones and Earths informed the HF works that the quantity of inert gas needed could be secured in East Germany in mid-1953.

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26. In late March 1952, about 20 kg of L 4 L 5-type luminous material were delivered from the USSR at a price of 83,000 eastmarks per 100 kg. This material was used in addition to the N 1/blue/1 and N 1/yellow/1-types of luminous materials delivered by the Leuchtstoffwerk Bad Liebenstein at the price of 36,000 eastmarks per 100 kg and to the M-31-type basic luminous material.

<u>Organization and Personnel.</u>

27. On 5 June 1952, the works were officially transferred from the SAG Kabel to the Ministerium fuer Post und Fernmeldewesen (Ministry for Post and Telecommunications) (MPF). The works were appraised on the basis of the value determined when it was taken over by SAG Kabel with the investments added but depreciations hardly taken into consideration. In October 1952, the works were insured with the Schwarzmeer-Ostsee Company for 39,219,000 eastmarks.

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28. In September 1952, the HV Funk (Main Administration for Radio and Wireless Communications) plans , for the construction of transmitters were , that the Funkwerk Koepenick build long wave transmitters, medium wave transmitters, and short wave transmitters; that the HF works manufacture ultra-short wave transmitters and develop television transmitters; and that the Sachsenwerk Radeberg build television transmitters.

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29. Cherepnin (fnu) was repeatedly seen in Moscow offices by engineers who had been deported but had returned and were employed in the works. These engineers even believed that he was working in Moscow. Aleksandr V. Burov who had been in charge of Soviet plan orders did not return to the USSR but went to the Entwicklung and Fertigung Elektrischer Messgeraete plant (Development and Production of Electric Measuring Instruments) (EFEM) in Berlin-Oberschoeneweide. Since 15 August 1952, a Soviet official who had come directly from Moscow had constantly been employed in the works as an acceptance official for metal-ceramic tubes each sample of which was tested electrically and mechanically.

30. In September 1952, three Czechs were in the works for about one week allegedly for informative purposes. They were especially interested in the development and production departments and were said to come from an institute in Prague where vacuum-technical questions were studied and where Dr. Espe (fnu), a German scientist, was working.

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1. [redacted] Comment. Data of the 1951 Annual Report were previously submitted. [redacted]. For supplementary information, see Annex 1.

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2. [redacted] Comment. For Extract from the New Version of the Plan for Organization Technical Measures, dated 10 April 1952, prepared by the Central Laboratory of the Chief Mechanic, See Annex 2.

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3. [redacted] Comment: The Berlin Telephone Directory (1950) lists Elmeg Elektro-Messinstrumenten-Ges. Madel & Roesener, SO 36, Mariannenstrasse 48.

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4. [redacted] Comment: Currently known as SAG fuer Maschinenbau AMO Messgeraete-und Armaturenwerk Karl Marx, Magdeburg-Buckau

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5. [redacted] Comment. For copy of the Plan for the Production of Tubes contained in the 1953 Production Plan, see Annex 3, and for Plan Fulfilment in Tube Production in June through September 1952, see Annex 4.

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[redacted]

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7. [redacted] Comment: These names are not certain.

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Annex 1 [redacted]

[redacted] the 1951 Annual Report

1. Various Figures from the 1951 balance:

Production materials	13,912,000.-	eastmarks
Production salaries	2,465,000.-	"
Production wages	7,640,000.-	"
Total cost of production (Supply of semifinished materials)	39,155,000.-	"
Amount of business done (invoiced performance)	37,250,000.-	"
Overhead cost wages	5,950,000.-	"
Overhead cost salaries	6,250,000.-	"
Bonuses on salaries	565,000.-	"
Total overhead costs	29,685,000.-	"

2. Material Supply:

Cathode nickel	5	tons
Molybdenum and tungsten wires	8,000,000	meters
Glass tubes of various diameters	15	tons
Glass bulbs	2,500,000	pieces

P 2 iron (The manufacturing process was developed in the works).
The Hettstedt and Auerhammer plants received an order for 1952 to develope and produce usable P 2-iron.
High-tension condensers and tool steels could not be procured.

3. The entire 1951 production and stocks brought forward from the 1950 production were sold. A quantity of existing stored materials, valued at 1,200,000 eastmarks, was used for production and then sold to other firms for 1,200,000 eastmarks.

4. The coordination plan was fulfilled with the exception of HIE 50 type tubes for Zwoenitz, LD 11, and LD 12 type tubes for Radeberg and some measuring instruments.

5. Energy Consumption:

Power	6,000,000	kw
Gas	1,690,000	cubic meters
Liquid oxygen	433,000	liters
Gaseous oxygen	49,000	cubic meters
Hydrogen	430,000	" "
Water	129,000	" "

6. The investment plan which provided investments totalling 2,110,000 eastmarks was fully executed.
Production means worth 100,000 eastmarks were installed without authorization. A total of 550,000 eastmarks was spent on repair, 632,000 eastmarks on cultural and social purposes including 470,000 eastmarks on the construction of dwellings for professional people in Koepenick-Nord.

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7. **The plan for organizational and technical measures for decreasing the prima costs had a target of 6.2 percent; 8.4 percent was achieved.**

8. **The plan for developing new products was fulfilled except for the manufacture of teleprinters.**

9. The damaged buildings of the former Knorrbremse AG on Neue Bahnhof Strasse were rebuilt to provide additional working space. Source learned that the rooms on the second, third, and fourth story of the NAG (Nationale Automobilgesellschaft, Berlin - Oberschoeneweide, Ostendstrasse 1-5) building which were occupied by a Soviet unit would be released.

Annex 2 [redacted] 25X1

25X1 [redacted]

New Investments

Special machine for punching the bulbs of the 1 Z 1 type tube	500.-	eastmarks
Machine for fitting the pipes to the bulbs of the P 50 type tube	1,250.-	"
Machine of 28 units making bases for television receiver tubes	7,020.-	"
Greasing machine for 1 Z 1 type cathode tubes	3,000.-	"
Device for staining, coppering, and tinning radio tubes	6,000.-	"
Dipping plant for blackening glass bulbs of television receiver tubes	3,500.-	"
Machine of 8 parts for sealing television receiver tubes	12,000.-	"
Device for pumping several metal ceramic tubes and other special tubes (TS 41) in one operation		

Other su jects covered: changes, economics, modifications of wages, and other measures for decreasing the prime costs.

1953 Production Plan

The 1953 production plan scheduled the production of 200,000 radio tubes per month and, beginning October, 250,000 tubes per month. The tubes were planned to be used, for example, in 40,000 T 2 type television receivers and 20,000 television receivers with miniature tubes. Specifically, tubes to be produced included:

	Type	Number of Pieces
Tubes with octal base	1 Z 1	80,000
	6 X 5	10,000
	5 Z 4	170,000
	6 H 6	150,000
	6 J 5	120,000
	6 H 8 M	170,000
	6 H 9 M	undetermined
	6 H 7 C	undetermined
	6 AC 7	250,000
	6 SH 7	17,000
	6 SJ 7	50,000
	6 SK 7	160,000
	P 50	50,000
	LV 3	10,000
	6 U 6	150,000
	6 F 6	40,000
	6 AG 7	50,000
	6 L 6	30,000
	6 SA 7	150,000
	6 SQ 7	110,000
	6 E 5	40,000
Miniature tubes	EY 51	25,000
	PU 80	45,000
	6 AL 5	45,000
	ECC 81	45,000
	ECC 82	45,000
	6 AG 5	195,000
	PL 83	25,000
	PL 81	25,000
	PCL 81	45,000
	6 X 4	1,000
	6 J 6	3,000
	6 AK 5	1,000
Transmitter tubes	RS 558	60
	RS 566	200
Metal-ceramic tubes	LD 7	25,000
	LD 9	25,000
	LD 11	55,000
	LD 12	55,000

The monthly production quota was 6,000 tubes in January 1953 with a planned increase to 30,000 tubes by December 1953 bringing the total to 160,000 tubes in 1953

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Annex 3

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Discharge lamps	HQA 500	300
	HJE 50	300
	2609	5,000

Apparatus Plant: 12 Ultra-short wave transmitters

Final output 3 kw (Order to build these transmitters was given in early October).

The development of the 250 w, and 1 kw stages of these transmitters was completed; the 3 kw stage was scheduled to be ready in March 1953 and a 10 kw stage was to be developed by October 1953. The transmitter was planned to be built in such a way as to be operated with the individual stages of 0.25 kw, 1 kw, 3 kw, and 10 kw.

The total production, including that of the apparatus plant, was to have a value of 154,500,000 eastmarks.

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Annex 4 [redacted] 25X1

Plan Fulfillment [redacted] 25X1

in June through September 1952.

	June	July	August	September
Radio tubes	180,000	100 percent	105 percent	88 percent
Special tubes	8,000	undetermined	103 "	70-80 "
Television receiver tubes	9,000	65 percent	90 "	[1] 105 "
Metal-ceramic tubes	-	3 "	35 "	[2]
			≈ 1,000 tubes	3,500 tubes [3]

25X1 [redacted] Comment: The hundredth RS 566 type transmitter tube was delivered on 11 July 1952.

1. Because of bad luminous gas deliveries from Bad Liebenstein.

2. Because of lack of material.

3. Only LD 11 type and LD 12 type tubes were manufactured.

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Annex 6 [redacted] 25X1

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Monthly Report for April

1. **Metal-ceramic tubes.**

   a. In April, SKX-type tubes were procured for the stoves and were built into units 1 and 2. With these ceramic tubes and a molybdenum cylinder in the stove, the molybdenum layer can, again, be satisfactorily burnt in. Trials to burn in without molybdenum cylinder failed, thus proving that a certain molybdenum vapor atmosphere is absolutely necessary for obtaining a well oxidized molybdenum coating.

   b. The ceramic parts delivered by the Hescho Firm were repeatedly tested. With all regulations strictly observed, the solderings were always unobjectionable. Since the Hescho ceramic is structurally tighter than ours, the soldering surface is ground considerably finer. However, since the adhesion of the molybdenum layer depends on a surface ground as coarse as possible, it was agreed with the Hescho Firm that the surface be ground with coarse grinding disks.

   c. In April, all essential points were settled in three discussions with the Hescho Firm:

      1. The delivery periods were generally shortened. Parts had already been delivered by Hescho on a continuing basis.
      2. Ceramic rings and cylinders will be delivered immediately ready and ground outside and inside.
      3. Pip discs will be delivered without recess in the hole.
      4. The Hescho Firm was informed on the annual demand for soldering ceramic parts.

   d. A shrinkage of the Hescho products, observed when the molybdenum layer was burnt in, was due to a production error as a result of too high temperature in the stove. Our pyrometer was therefore, calibrated by comparison with Seeger cones.

   e. Defects resulting from untightness or low emission have considerably increased. Several attempts have been undertaken to prevent these defects but no final results are available. Untightness is essentially due to new laborers. The emission difficulties seem to be caused by insufficient burner and cathode material.

   f. Three percent of ammonium paramolybdate was added to the molybdenum paste to obtain better solderings. As the results were entirely satisfactory; complete tubes are constructed.

   g. Trials were made with molybdenum nickel paste for simplifying the manufacture. Negative results were obtained as the molybdenum was not burnt in.

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Annex 6 25X1

h. Attemps for regaining ceto paste have failed.

i. Further attempts were made to regain the grid caps, but no final results were obtained. All grid caps are collected, however, and suitably treated.

k. Parts reclaimed for production included: 98 upper parts of LD-11/12-type tubes; 325 LD-7-type anodes, 181 LD-9-type anodes; and 2,310 pump fittings.

l. It was discovered that three qualities of the cathode material of the LD 11/12 type are being used and that one of these has a manganese content of about 0.103 percent. A bright material with a manganese content of about 0.05 percent gave good results for emission.

2. Transmitter Tubes.

a. The technology of the 5 D 21 type is still not clear especially as to the tension safety. Cathodes which do not emit do not meet the emission condition. Further trials are going on.

b. The 829 B type is complete technologically. However, suitable women assemblers were lacking in April.

c. Type AS 1,000 is technically clear. Material is still in stock to deliver 50 more tubes. An order would have to be given by the selling department.

3. Rectifiers and Stabilizers.

a. The Siemens & Halske firm in Zwoenitz has not given its opinion on the technical conditions of the S 0.8/21 III type.

b. A request was made for the delivery of about 5,000 thyratrons for regulating and controlling purposes. Thyratrons are newly developed inert gas tubes. See note of Kostenstelle 415 of 30 April 1952. It is proposed to accept this order if the material situation permits.

c. Because nickel-A-wire was again used for the G 7.5/0.6d type, the defects decreased to a normal rate.

d. Trials were made with the STV 70/6 type. The electrodes were previously dipped into barium acid. This process often caused electrode shorts as relatively long crystals were formed. Therefore, a sweeping-over method was tested which, however, was not satisfactory. The trials are going on.

Annex 6

25X1

4. <u>Discharge Lamps</u>.

a. Difficulties continue in production of the HBO 50 type, as the G 7 type tungsten wire produced in the works has not the required degree of purity and the electrode tops burn away when in service. It was agreed with Lesinski (fnu) to manufacture a tungsten wire of the required purity degree.

b. The electric arc of type HQE 40 still burns irregularly, probably because the tungsten wire is not sufficiently clean thus causing gas eruptions when burning.

c. The difficulties experienced with type HQA 500 have been overcome by adopting the method of melting-in a nipple instead of a band.

d. The failures of type NHRT have recently increased because of fine leaks the cause of which has not yet been established.

5. <u>General</u>.

The regaining group was transferred from Kostenstelle 415 to Kostenstelle 563.

25X1

Annex 7

25X1

25X1

1. Program for April, May and June.

Item	Number
High-frequency voltage analyzer of 10 kilocycles to 1.5 megacycles.	4
Short wave field intensity meter for 1 to 25 megacycles	2
Ultra-short wave field strengthmeter for 20 to 100 mc/s megacycles.	2
Direct-reading transmission measuring set for 0.3 to 700 kilocycles.	10
High frequency phasemeter	2
Start-stop distortion meter	1
Germanium semi-conductor triodes	20
High temperature vaccum crystallization stove	1
Supericonoscope	3
Cold-cathode-ray oscillograph	1
Club television receiver	1
Test device for supericonoscopes	1
Ultra-short wave sound transmitter of 10 kw	2
Television transmitter for sound and image of 2 kw	1

2. Program for July, August and September.

Frequency analyser	Number	Order No
50 kilocycles to 1 megacycle	5 + 1	132006
1 kilocycle to 20 megacycles	5 + 1	132030
Frequency measuring precision disk		
1 kilocycle to 20 megacycles	10 + 2	132007
Standard frequency exciter		
100/10/1 kilocycles	10 + 2	132007
Frequency converter		
1 to 100 kilocycles	10 + 2	132031
0.1 to 1 kilocycle	10 + 2	132032
Grip anode capacity meter		
2 . 10^{-4} to 20 power Farad	1 + 1	132021
Admittance meter		
0.5 to 50 megacycles	2+1	140000

25X1

SECRET [redacted] 25X1

Annex [redacted] 25X1

3. <u>Program for October 1952.</u>

(R - remainder) values in 1,000 eastmarks

	HF Type No	Production No	Number	Established Value	Delivery Value	
Pulse generator		270029	1	24.8	52.7	
Band pass	2939	290237	8	6.8	15.0	
Voltage analyser	Lu 2880	253042	2	7.4	17.0	
			1	3.7	8.5	R
Level transmitter	2870	250043	1	1.0	5.7	R
Direct-reading transmission measuring set	2903	250043	1	1.0	4.3	R
Electron microscope		270006	1	80.0	84.0	
Admittance measuring bridge	2869	250043	1	5.9	8.5	R
"	2905	250081	1	5.9	8.6	R
Service life tester for four rasters		40145	1	12.0	12.0	R
Emission tester		00076	2	4.0	4.0	R
Matching tester		270017	1	0.8	14.8	R
Concentric instrument leads		270018	1	0.8	12.9	R
Artificial antenna		270019	1	0.8	1.2	R
				154.9	249.2	

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